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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/766,048	01/19/2001	Frank Carr	41601/PBH/B600	1888

7590 03/11/2004  
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EXAMINER

HARVEY, DAVID E

ART UNIT PAPER NUMBER

2614

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/766,048

Applicant(s)

CARR ET AL.

Examiner

DAVID E HARVEY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 10,11,14,16-20,22-27 and 30-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10,11,14,16-20,22-27 and 30-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>16 2/19</u> | 6) <input type="checkbox"/> Other: _____  |

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103<sup>®</sup> and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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2. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Birleson et al. [US #6,177,964] in view of Rodal et al. [US # 5,564,098], Scheinberg [US Patent #5,625,307], and the article "A 3 CHIP GaAs DOUBLE CONVERSION TV TUNER WITH 70 dB IMAGE REJECTION" by Ducourant et al..

**I. The showing of Birleson et al.:**

As is illustrated in figure 1, Birleson et al. disclosed a receiver (10) which, in the preferred embodiment, was to have been implemented on a single IC chip [e.g. lines 36-40 of column 4]. As shown the receiver comprised:

- a) A substrate (an inherent part of the IC chip);
- b) A first mixer which performs up-conversion (@103), wherein the mixer was disposed on the substrate (again, an inherent part of the IC chip);
- c) A first filter coupled to the output of the mixer (@109) wherein, as a noted choice of design, this filter could be implemented either on or off chip [e.g. lines 13-16 of column 8];
- d) A second mixer that performed down-conversion (@110) wherein, when necessary, this second mixer was an image rejection mixer [e.g. lines 23-27 of column 8];
- e) A second filter coupled to the output of the second mixer (@113) wherein, as a noted choice of design, this filter could be implemented either on or off chip [e.g. lines 55-58 of column 8]; and
- f) An AGC circuit (@116).

**II. Differences:**

Claim 10 differs from the showing of Birleson et al. only in that:

- a) Filter (@ 109) in Birleson et al. was not described as having comprised a differential filter.

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**III. Obviousness:**

Within the RF receiver art, it was notoriously well known to have implemented the circuitry components using differential/balanced circuitry. This is evidenced, for example, in the showings of Rodal et al. [US # 5,564,098], Scheinberg [US Patent #5,625,307], and the article "A 3 CHIP GaAs DOUBLE CONVERSION TV TUNER WITH 70 dB IMAGE REJECTION" by Ducourant et al. Implementing the components of the receiver in with differential/balanced circuitry had the known advantage canceling/reducing the RF noise was transmitted that via between components (i.e. leakage).

It would have been obvious to one of ordinary skill in the art to have implemented the components of the single chip receiver that was described by Birleson et al. using differential/balanced circuit components. As noted above, such an implementation was known to have been advantageous in that it reduced RF noise (i.e. the motivation for the combination).

3. Claims 14, 17, 18, 19, 20, 22, 23, 25, 26, 27, 30-36, and 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birleson et al. [US #6,177,964] in view of Rodal et al. [US # 5,564,098], Scheinberg [US Patent #5,625,307], and the article "A 3 CHIP GaAs DOUBLE CONVERSION TV TUNER WITH 70 dB IMAGE REJECTION" by Ducourant et al.

a) With respect to the "CMOS" recitation of claim 14, note lines 31-35 of column 4 in Birleson et al.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Birleson et al. [US #6,177,964] in view of Rodal et al. [US # 5,564,098], Scheinberg [US Patent #5,625,307], and the article "A 3 CHIP GaAs DOUBLE CONVERSION TV TUNER WITH 70 dB IMAGE REJECTION" by Ducourant et al.

While Birleson et al. does explicitly state that the filters (109 and 113) are SAW filters, the examiner maintains that such an implementation was at least obvious (if not inherent). That is SAW filters were known to have been advantageously used within such receiver circuitry because they were small in size and could be fabricated

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without the use of manually tuned circuitry simplifying their fabrication. However, they could not be implemented as part of the IC and therefor comprised an off-chip element (i.e. as noted above, such an off chip implementation having been acknowledge as an obvious choice of design by Birleson et al.)

5. Claims 16, 24, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birleson et al. [US #6,177,964] in view of Rodal et al. [US # 5,564,098], Scheinberg [US Patent #5,625,307], and the article "A 3 CHIP GaAs DOUBLE CONVERSION TV TUNER WITH 70 dB IMAGE REJECTION" by Ducourant et al. for the same reasons that were set forth for claims 14, 17, 18, 19, 20, 22, 23, 25, 26, 27, 30-36, and 39-42 above.

The examiner notes that the differential nature of the mixing circuitry in the modified system of Birleson et al. means that the mixers and the oscillators will inherently be polyphase (I/Q) circuit elements

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID E HARVEY whose telephone number is (703) 305-4365. The examiner can normally be reached on M-F from 9 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller, can be reached on 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAVID E HARVEY  
Primary Examiner  
Art Unit 2614

1. Any inquiry concerning this communication should be directed to **David E. Harvey** whose telephone number is (703) 305-4365. The examiner can normally be reached Monday-Friday between the hours of 9:30 AM and 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. John W. Miller, can be reached at (703) 305-4795.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. Sixth Floor (Receptionist).

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose number is (703) 306-0377.

DEH 6/03

  
DAVID E. HARVEY  
PRIMARY EXAMINER